

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A segment of human mitochondrial DNA or RNA of between 10 and 100 bases including a ~~any one of the~~ polymorphic ~~site~~ sites shown in Table 1 selected from the group consisting of 64, 73, 93, 182, 195, 235, 247, 297, 316, 325, 680, 1040, 1442, 1706, 2358, 2416, 2789, 3200, 3337, 3450, 3516, 3594, 3648, 3666, 3745, 3866, 3918, 4104, 4158, 4586, 4767, 4967, 5027, 5096, 5252, 5285, 5331, 5773, 5814, 5823, 5912, 6071, 6150, 6237, 6253, 6527, 6614, 6663, 6713, 6806, 6827, 6875, 7146, 7389, 7518, 7624, 8080, 8387, 8503, 8566, 8655, 8854, 8877, 9042, 9072, 9347, 9449, 9818, 10031, 10321, 10664, 10688, 10793, 10810, 10828, 11164, 11176, 11641, 11800, 12049, 12115, 12354, 12477, 12777, 12948, 13149, 13184, 13276, 13485, 13506, 13914, 14000, 14059, 14407, 15119, 15136, 15431, 15629, 15734, 15849, 15883, 15902, 16093, 16111, 16114, 16124, 16126, 16129, 16145, 16148, 16264, 16278, 16290, 16318, 16319, 16354, 16362, 16390, and 16519, wherein the polymorphic site within the segment is occupied by a base shown in Table 1, column 3 ("asn base") or the perfect complement of the full length of the segment.

2. Canceled

3. (Original) The segment of claim 1, wherein the polymorphic form occupying the polymorphic site is an alternative form listed in Table 1, column 2, or 4-11.

4 (Currently amended) An allele-specific oligonucleotide that is perfectly complementary to a segment of human mitochondrial nucleic acid or its perfect complement including a polymorphic site selected from the group consisting of 64, 73, 93, 182, 195, 235, 247, 297, 316, 325, 680, 1040, 1442, 1706, 2358, 2416, 2789, 3200, 3337, 3450, 3516, 3594, 3648, 3666, 3745, 3866, 3918, 4104, 4158, 4586, 4767, 4967, 5027, 5096, 5252, 5285, 5331, 5773, 5814, 5823, 5912, 6071, 6150, 6237, 6253, 6527, 6614, 6663, 6713, 6806, 6827, 6875,

7146, 7389, 7518, 7624, 8080, 8387, 8503, 8566, 8655, 8854, 8877, 9042, 9072, 9347, 9449, 9818, 10031, 10321, 10664, 10688, 10793, 10810, 10828, 11164, 11176, 11641, 11800, 12049, 12115, 12354, 12477, 12777, 12948, 13149, 13184, 13276, 13485, 13506, 13914, 14000, 14059, 14407, 15119, 15136, 15431, 15629, 15734, 15849, 15883, 15902, 16093, 16111, 16114, 16124, 16126, 16129, 16145, 16148, 16264, 16278, 16290, 16318, 16319, 16354, 16362, 16390, and 16519 shown in Table 1, column 1, wherein the polymorphic site within the segment is occupied by a base other than the base shown in Table 1, column 3 ("asn base")] comprising the segment or the full complement thereof as defined by claim 1.

5. (Previously presented) The allele-specific oligonucleotide of claim 4 that is a probe.

6. (Previously presented) The allele-specific oligonucleotide of claim 4, wherein a central position of the probes aligns with the polymorphic site of the fragment.

7. (Previously presented) The allele-specific oligonucleotide of claim 4 that is a primer.

8. (Previously presented) The allele-specific oligonucleotide of claim 7, wherein the 3' end of the primer aligns with the polymorphic site of the fragment.

9. (Currently amended) An isolated nucleic acid comprising a segment of at least 10 contiguous bases from SEQ ID NO:30, or the perfect complement of the full length thereof, including a polymorphic site shown in Table 1 selected from the group consisting of 64, 73, 93, 182, 195, 235, 247, 297, 316, 325, 680, 1040, 1442, 1706, 2358, 2416, 2789, 3200, 3337, 3450, 3516, 3594, 3648, 3666, 3745, 3866, 3918, 4104, 4158, 4586, 4767, 4967, 5027, 5096, 5252, 5285, 5331, 5773, 5814, 5823, 5912, 6071, 6150, 6237, 6253, 6527, 6614, 6663, 6713, 6806, 6827, 6875, 7146, 7389, 7518, 7624, 8080, 8387, 8503, 8566, 8655, 8854, 8877, 9042, 9072, 9347, 9449, 9818, 10031, 10321, 10664, 10688, 10793, 10810, 10828, 11164, 11176, 11641, 11800, 12049, 12115, 12354, 12477, 12777, 12948, 13149, 13184, 13276, 13485, 13506, 13914, 14000, 14059, 14407, 15119, 15136, 15431, 15629, 15734, 15849, 15883, 15902, 16093, 16111,

16114, 16124, 16126, 16129, 16145, 16148, 16264, 16278, 16290, 16318, 16319, 16354, 16362, 16390, and 16519, wherein the polymorphic site within the segment is occupied by a base other than the base shown in Table 1, column 3 ("asn base").

10. (Currently amended) A method of analyzing a nucleic acid comprising;

obtaining the nucleic acid from an individual; and

identifying a base occupying ~~a any one of the~~ polymorphic site sites shown in Table 1 selected from the group consisting of 64, 73, 93, 182, 195, 235, 247, 297, 316, 325, 680, 1040, 1442, 1706, 2358, 2416, 2789, 3200, 3337, 3450, 3516, 3594, 3648, 3666, 3745, 3866, 3918, 4104, 4158, 4586, 4767, 4967, 5027, 5096, 5252, 5285, 5331, 5773, 5814, 5823, 5912, 6071, 6150, 6237, 6253, 6527, 6614, 6663, 6713, 6806, 6827, 6875, 7146, 7389, 7518, 7624, 8080, 8387, 8503, 8566, 8655, 8854, 8877, 9042, 9072, 9347, 9449, 9818, 10031, 10321, 10664, 10688, 10793, 10810, 10828, 11164, 11176, 11641, 11800, 12049, 12115, 12354, 12477, 12777, 12948, 13149, 13184, 13276, 13485, 13506, 13914, 14000, 14059, 14407, 15119, 15136, 15431, 15629, 15734, 15849, 15883, 15902, 16093, 16111, 16114, 16124, 16126, 16129, 16145, 16148, 16264, 16278, 16290, 16318, 16319, 16354, 16362, 16390, and 16519, wherein the base is a base other than the base shown in Table 1, column 3 ("asn base").

11-14. Canceled

15. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 64, 73, 93, 182, 195, 235, 247, 297, 316, and 325.

16. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 663, 680, 709, 769, 825, 1018, 1040, 1048, 1442, and 1706.

17. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~1736~~, 2358, 2416, ~~2758~~, 2789, ~~2885~~, ~~3010~~, 3200, ~~3336~~, and 3337.

18. (Previously presented) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 3450, 3516, 3594, 3648, 3666, 3745, 3866, 3918, 4104, and 4158.

19. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~4248~~, ~~4312~~, 4586, 4767, ~~4824~~, 4967, 5027, and ~~5096~~, ~~5147~~, and ~~5231~~.

20. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 5252, 5285, 5331, ~~5460~~, ~~5603~~, 5773, 5814, 5823, 5912, and 6071.

21. (Previously presented) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 6150, 6237, 6253, 6527, 6614, 6663, 6713, 6806, 6827 and 6875.

22. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 7146, 7175, 7256, 7274, 7389, 7518, ~~7521~~, and ~~7624~~, ~~7771~~, and ~~8027~~.

23. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~8080~~, ~~8206~~, 8387, ~~8428~~, ~~8468~~, 8503, 8566, 8655, ~~8701~~ and 8784.

24. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~8794~~, 8854, 8877, 9042, 9072, 9221, 9347, 9449, 9818 and 10031.

25. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 10115, 10321, 10373, ~~10586~~, 10664, 10688, 10793, 10810, and 10828, ~~and 10873~~.

26. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~10915~~, 11164, 11176, 11641, ~~11654~~, 11800, ~~11914~~, ~~11944~~, ~~12007~~, and 12049.

27. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 12115, ~~12236~~, 12354, 12477, 12720, 12777, ~~12810~~, 12948, ~~13105~~ and 13149.

28. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 13184, 13203, 13276, 13485, 13506, ~~13590~~, 13650, 13789, 13803 and 13914.

29. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~13958~~, 13966, 14000, 14059, 14178, 14308, 14407, ~~14560~~, 14566 and 14911.

30. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~15043~~, ~~15067~~, ~~15110~~, 15119, 15136, ~~15217~~, 15244, ~~15301~~, 15431 and 15629.

31. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of 15734, 15784, 15849, 15883, 15902, ~~16093~~, 16111, 16114, 16124 and 16126.

32. (Currently amended) The segment of claim 1, wherein the polymorphic site is at a position selected from the group consisting of ~~16129~~, 16145, ~~16148~~, 16264, ~~16278~~, ~~16290~~, 16318, ~~16319~~, and 16354.

Appl. No. 08/856,376
Amdt. dated October 27, 2003
Reply to Office Action of June 26, 2003

PATENT

33. Canceled.